UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,406	01/02/2002	Sara H. Basson	YOR920010454US1	2265

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EXAMINER
VO, HUYEN X

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/040,406	BASSON ET AL.
	Examiner	Art Unit	
	Huyen Vo	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>21 March 2005</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-33</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-33</u> is/are rejected.

7) ☒ Claim(s) <u>9</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>02 January 2002</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
   application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Applicant has submitted an amendment filed 3/21/2005, amending claims 1, 11,

15, 19, 23, 27, and 31-33, while arguing to traverse the art rejection based on amended

limitations regarding "*each of said decoder using speaker model corresponding to a*

different one of said speakers" and "*provide speech to a speaker independent speech*

recognition system and a speaker specific speech recognition system substantially

simultaneously" (*see claim amendment*). Applicant's arguments have been fully

considered but they are not persuasive. Applicant's invention is drawn to a speech

recognition system, wherein the input speech is analyzed to identify the speaker and in

response to the identified speaker retrieving speech models corresponding to that

speaker for use in a speech recognizer. Referencing to figure 3, a speech recognition

result from each of a plurality of speech recognizers are compared to each other to

determine the best result based on the confidence score. However, neither figure 3 nor

the specification suggest/indicate that each of the plurality of the speech recognizers in

figure 3 using a speaker model corresponding to a different one of the speakers (*or*

commonly referred as speaker-specific speech recognizers). Furthermore, figure 4

shows two different types of speech recognizers, speaker-independent ASR and

speaker-dependent ASR. There is no connection between these two types of ASR's

and a plurality of ASR's shown in figure 3. As thus, the examiner concludes that the

newly added feature regarding *using speaker model corresponding to a different one of*

said speakers is not supported by the specification. The examiner treats the amended

claims as having a plurality of speech recognizers connected in parallel recognizing a

common input speech and compare the recognition result to determine the a single best

recognition result based on confidence score, and the prior art of record fully anticipate

the claim limitation. Thus, previous ground of rejection is maintained.

2.   Referring to applicant's argument based on the second amended limitation

regarding *provide speech to a speaker independent speech recognition system and a*

speaker specific speech recognition system substantially simultaneously, applicant's

arguments have been fully considered but they are not persuasive. Murveit et al. (US

6671669) fully anticipates all the claim limitations in that the input speech is sent to both

speaker-dependent ASR (*elements 112 and 118 in figure 1*) and speaker-independent

ASR (*elements 114, 116, 120, and 122 in figure 1*). A decision logic (*element 124 in*

figure 1) determining the best recognition result from the three recognition results

provided at the output of the three speech recognizers. Therefore, previous ground of

rejection is maintained.

Claim Rejections - 35 USC § 112

3.   Claims 1-14, 19-22, and 31 are rejected under 35 U.S.C. 112, first paragraph, as

failing to comply with the enablement requirement. The claim(s) contains subject matter

which was not described in the specification in such a way as to enable one skilled in

the art to which it pertains, or with which it is most nearly connected, to make and/or use

the invention. Applicant's invention is drawn to a speech recognition system, wherein

the input speech is analyzed to identify the speaker and in response to the identified

speaker retrieving speech models corresponding to that speaker for use in a speech

recognizer. Referencing to figure 3, a speech recognition result from each of a plurality

of speech recognizers are compared to each other to determine the best result based

on the confidence score. However, neither figure 3 nor the specification

suggest/indicate that each of the plurality of the speech recognizers in figure 3 using a

speaker model corresponding to a different one of the speakers (*or commonly referred*

as speaker-specific speech recognizers). Furthermore, figure 4 shows two different

types of speech recognizers, they are speaker-independent ASR and speaker-

dependent ASR. There is no connection between these two types of ASR's and a

plurality of ASR's shown in figure 3. As thus, the examiner concludes that the newly

added feature regarding *using speaker model corresponding to a different one of said*

speakers is not supported by the specification. The examiner treats the amended

claims as having a plurality of speech recognizers connected in parallel recognizing a

common input speech and compare the recognition result to determine the a single best

recognition result based on confidence score, and the prior art of record fully anticipate

the claim limitation.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1-2, 4, 19-20, 22, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Garudadri et al. (US Patent No. 6671669).

6.   Regarding claim 1, Garudadri et al. disclose a method for transcribing speech of a plurality of speakers, comprising: providing said speech to a plurality of speech decoders, each of said decoders using a speaker model for one of said speakers and generating a confidence score for each decoded output (*figure 1 or referring to 8, In. 33-67*); and selecting a decoded output based on said confidence score (*the process of figures 7-9*).

7.   Regarding claim 19, Garudadri et al. disclose a system for transcribing speech of a plurality of speakers, comprising:

    a memory that stores computer-readable code (*col. 13, In. 18-60*); and a processor operatively coupled to said memory, said processor configured to implement said computer-readable code (*col. 13, In. 18-60*), said computer-readable code configured to:

    provide said speech to a plurality of speech decoders, each of said decoders using a speaker model for one of said speakers and generating a confidence score for

each decoded output (*figure 1 or referring to 8, In. 33-67*); and select a decoded output having a highest confidence score (*the process of figures 7-9*).

8.   Regarding claim 31, Garudadri et al. disclose an article of manufacture for transcribing speech of a plurality of speakers, comprising:

a computer readable medium having computer readable code means embodied thereon (*col. 13, In. 18-60*), said computer readable program code means comprising:

a step to provide said speech to a plurality of speech decoders, each of said decoders using a speaker model for one of said speakers and generating a confidence score for each decoded output (*figure 1 or referring to 8, In. 33-67*); and a step to select a decoded output having a highest confidence score (*the process of figures 7-9*).

9.   Regarding claims 2, 4, 20, and 22, Garudadri et al. further disclose the method and system of claims 1 and 19, further comprising the step of aligning each of said decoded outputs in time (*the DTW Matching in elements 118, 120, and 122 in figure 1 is the aligning step*), and the step of presenting said selected decoded output to a user (*col. 8, In. 64 to col. 9, In. 2*).

10.   Claims 11-18, 23-30, and 32-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Murveit et al. (US Patent No. 6671669).

11.   Regarding claim 11, Murveit et al. disclose a method for transcribing speech of a

plurality of speakers, comprising: providing said speech to a speaker independent

speech recognition system and a speaker specific speech recognition system (*referring*

to figures 3-5 or col. 4, ln. 1 to col. 5, ln. 67); and decoding said speech using said

speaker independent speech recognition system whenever the identity of the current

speaker is unknown (*elements 206, 208, and 210 in figure 3*).

12.   Regarding claim 15, Murveit et al. disclose a method for transcribing speech of a

plurality of speakers, comprising: providing said speech to a speaker independent

speech recognition system and a speaker specific speech recognition system (*referring*

to figures 3-5 or col. 4, ln. 1 to col. 5, ln. 67); and decoding said speech using said

speaker specific speech recognition system with a speaker model for an identified

speaker until there is a speaker change (*the operation of figure 3, at first when the*

speaker using the system is speaker specific, acoustic profile of that speaker is used in

the speech recognition process. However, when a different speaker uses the system

detected by the ID Speaker 204, the system retrieves profile of said different speaker for

use in the speech recognition process).

13.   Regarding claim 23, Murveit et al. further disclose a system for transcribing

speech of a plurality of speakers, comprising:

        a memory that stores computer-readable code (*element 104 and 106 in figure 2*);

and a processor operatively coupled to said memory, said processor configured to

implement said computer-readable code (*Processor 102 in figure 2*), said computer-readable code configured to:

provide said speech to a speaker independent speech recognition system and a speaker specific speech recognition system (*referring to figures 3-5 or col. 4, In. 1 to col. 5, In. 67*); and decode said speech using said speaker independent speech recognition system whenever the identity of the current speaker is unknown (*elements 206, 208, and 210 in figure 3*).

14.   Regarding claim 27, Murveit et al. disclose a system for transcribing speech of a plurality of speakers, comprising:

a memory that stores computer-readable code (*element 104 and 106 in figure 2*); and a processor operatively coupled to said memory, said processor configured to implement said computer-readable code (*Processor 102 in figure 2*), said computer-readable code configured to:

provide said speech to a speaker independent speech recognition system and a speaker specific speech recognition system (*referring to figures 3-5 or col. 4, In. 1 to col. 5, In. 67*); and decode said speech using said speaker specific speech recognition system with a speaker model for an identified speaker until there is a speaker change (*the operation of figure 3, at first when the speaker using the system is speaker specific, acoustic profile of that speaker is used in the speech recognition process. However, when a different speaker uses the system detected by the ID Speaker 204, the system retrieves profile of said different speaker for use in the speech recognition process*).

15.   Regarding claims 12-14, 17-18, 24-26, and 29-30, Murveit et al. further disclose

the method and system of claims 11, 15, 23, and 27, wherein said decoding step

continues until a speaker identification system identifies an unknown speaker (*the*

operation in figure 3 is a continuous process, speaker changes are continuously

monitored by the ID Speaker 204), wherein one or more of said speaker independent

speech recognition system and said speaker specific speech recognition system are on

a remote server (*Speech Recognition System in figure 2*), and the step of presenting

said selected decoded output to a user (*col. 7, ln. 9-22*).

16.   Regarding claims 16 and 28, Murveit et al. further disclose the method and

system of claims 15 and 27, further comprising the step of decoding said speech using

a speaker independent speech recognition system until the identity of a speaker is

determined and the appropriate speaker model is loaded (*the operation of figure 3, at*

first when the speaker using the system is speaker specific, acoustic profile of that

speaker is used in the speech recognition process. However, when a different speaker

uses the system detected by the ID Speaker 204, the system retrieves profile of said

different speaker for use in the speech recognition process).

17.   Regarding claim 32, Murveit et al. disclose an article of manufacture for

transcribing speech of a plurality of speakers, comprising:

a computer readable medium having computer readable code means embodied

thereon (*memory system 104 in figure 4*), said computer readable program code means

comprising:

a step to provide said speech to a speaker independent speech recognition

system and a speaker specific speech recognition system (*referring to figures 3-5 or col.

4, In. 1 to col. 5, In. 67*); and

a step to decode said speech using said speaker independent speech

recognition system whenever the identity of the current speaker is unknown (*elements

206, 208, and 210 in figure 3*).

18.   Regarding claim 33, Murveit et al. disclose an article of manufacture for

transcribing speech of a plurality of speakers, comprising:

a computer readable medium having computer readable code means embodied

thereon (*memory system 104 in figure 4*), said computer readable program code means

comprising:

a step to provide said speech to a speaker independent speech recognition

system and a speaker specific speech recognition system (*referring to figures 3-5 or col.

4, In. 1 to col. 5, In. 67*); and

a step to decode said speech using said speaker specific speech recognition

system with a speaker model for an identified speaker until there is a speaker change

(*the operation of figure 3, at first when the speaker using the system is speaker specific,

acoustic profile of that speaker is used in the speech recognition process. However,*

when a different speaker uses the system detected by the ID Speaker 204, the system

retrieves profile of said different speaker for use in the speech recognition process).

Claim Rejections - 35 USC § 103

19.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20.   Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Garudadri et al. (US Patent No. 6671669) in view of Baker (US Patent No. 6122613).

21.   Regarding claims 5-7, Garudadri et al. fail to specifically disclose the method of

claim 1, further comprising the step of manually selecting an alternate decoded output if

said assigned output is incorrect, the step of adapting said selecting step based on said

manual selection, and the step of presenting several decoded outputs to a user with an

indication of said corresponding confidence score.

However, Baker teach the step of manually selecting an alternate decoded

output if said assigned output is incorrect (*col. 8, ln. 33 to col. 9, ln. 40*), the step of

adapting said selecting step based on said manual selection (*col. 9, ln. 18-40*), and the

step of presenting several decoded outputs to a user with an indication of said

corresponding confidence score (*col. 8, ln. 33 to col. 9, ln. 40*).

Since Garudadri et al. and Baker are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Garudadri et al. by incorporating the teaching of Baker in order to enable the user to correct misrecognized words and to train the system to enhance subsequent recognitions.

22.   Claims 3, 10, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garudadri et al. (US Patent No. 6671669) in view of Murveit et al. (US Patent No. 6671669).

23.   Regarding claim 10, Garudadri et al. fail to disclose the method of claim 1, wherein said selecting step further comprises the step of determining if a decoded output includes an isolated word from a second speaker in a string of words from a first speaker. However, Murveit et al. teach that the selecting step further comprises the step of determining if a decoded output includes an isolated word from a second speaker in a string of words from a first speaker (*Speaker ID 204 in figure 3 determines speaker changes*).

Since Garudadri et al. and Murveit et al. are analgous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Garudadri et al. by incorporating the teaching of Murveit et al. in order to specify the system to use speaker-specific profile in recognizing speech to enhance speech recognition accuracy.

24.   Regarding claims 3 and 21, Garudadri et al. fail to specifically disclose the

method and system of claims 1 and 19, wherein one or more of said speech decoders

are on a remote server. However, Murveit et al. teach that one or more of said speech

decoders are on a remote server (*Speech Recognition System 100 in figure 2*).

Since Garudadri et al. and Murveit et al. are analgous art because they are from

the same field of endeavors, it would have been obvious to one of ordinary skill in the

art at the time of invention to modify Garudadri et al. by incorporating the teaching of

Murveit et al. in order to distribute the processing load from the limited-processing-

capability device.

25.   Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garudadri

et al. (US Patent No. 6671669) in view of Chao Chang et al. (US Patent No. 6567778).

26.   Regarding claim 8, Garudadri et al. fail to specifically disclose the method of

claim 1, further comprising the step of presenting said decoded output as a string of

words if said corresponding confidence score exceeds a certain threshold and as a

string of phones if said corresponding confidence score is below a certain threshold.

However, Chao Chang et al. teach the step of presenting said decoded output as a

string of words if said corresponding confidence score exceeds a certain threshold and

as a string of phones if said corresponding confidence score is below a certain

threshold (*element 116 in figure 1, if the confidence score is lower than the threshold,*

the user is queried to re-input the low confidence score words. Thus, the query must

represent a series of phones).

Since Garudadri et al. and Chao Chang et al. are analgous art because they are

from the same field of endeavors, it would have been obvious to one of ordinary skill in

the art at the time of invention to modify Garudadri et al. by incorporating the teaching of

Chao Chang et al. in order to allow the user to correct misrecognized words to enhance

speech recognition in subsequent recognitions.

Allowable Subject Matter

27.   Claim 9 is objected to as being dependent upon a rejected base claim, but would

be allowable if rewritten in independent form including all of the limitations of the base

claim and any intervening claims. The following is a statement of reasons for the

indication of allowable subject matter: Garudadri et al. disclose a method and system

that combines speech recognition engines and resolves any differences between the

results of individual speech recognition engines (*referring to figure 1*). Murveit et al.

teach a speech recognition adaptation system that whenever a new speaker is

encountered, the system uses the speaker independent models to carry out speech

recognition. At the same time the speaker independent models are used to adapt the

speech of the new speaker. The adapted speech for the speaker is stored in memory

for use in subsequent speech recognition of this speaker (*referring to figures 3-5*).

However, both Garudadri et al. and Murveit et al. fail to specifically disclose the step of

"presenting said decoded output as a string of words for the decoded output having the

highest confidence score and as phones or syllables for all other decoded outputs."

Furthermore, it would have not been obvious to one of ordinary skill in the art at the time of invention to modify prior art of record to realize the claimed invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
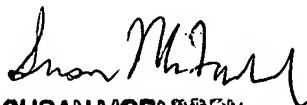
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Huyen X. Vo   May 10, 2005

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SUSAN MCFADDEN
PRIMARY EXAMINER